

NO DRAWINGS.

The Inventors of this invention in the sense of being the actual devisers thereof within the meaning of Section 16 of the Patents Act 1949 are:—HORST BELDE and EWALD DAUBACH, citizens of the Federal Republic of Germany, residing, respectively, at 23 Georg-Herwegh-Strasse, Ludwigshafen/Rhein; and Lungestrasse, Ludwigshafen/Rhein; Federal Republic of Germany.

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COMPLETE SPECIFICATION.

Pigment Preparations containing Carbon Black and the Production of the same.

We, BADISCHE ANILIN- & SODA-FABRIK AKTIENGESELLSCHAFT, a German Joint Stock Company, of Ludwigshafen/Rhein, Federal Republic of Germany, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to pigment preparations for dope-dyeing or mass-colouring polyacrylonitrile which consist of or contain:—

- (a) carbon black;
- (b) dimethylformamide; and
- (c) 0.1 to 10% by weight of triethanolamine and/or phenylene diamine, and to a method of preparing these pigment preparations.

A process for the production of pigment preparations for dope-dyeing or mass-colouring polyacrylonitrile is known from British Patent Specification No. 909,609 according to which the pigment is ground with dimethylformamide and a small amount of polyacrylonitrile.

When carbon black is used as the pigment in this method, it is possible to prepare useful pigment preparations having a carbon black content of 10 to 20% by weight but the time required for grinding until the required degree of fine division has been achieved is undesirably long. Since the viscosity of preparations containing carbon black increases greatly with only a

slight increase in the content of pigment, it is not possible in this way to increase the relatively low pigment content, even when polyacrylonitrile (which has the effect of increasing the viscosity of the preparation) is omitted.

We have now found that this disadvantage can be avoided when the grinding of the pigment in dimethylformamide for the production of pigment preparations containing carbon black for mass-colouring polyacrylonitrile is carried out in the presence of 0.01 to 10% by weight, preferably 0.1 to 2% by weight, on the preparation, of triethanolamine and/or p-phenylene diamine.

The components of the pigment preparation (carbon black, dimethylformamide and triethanolamine and/or p-phenylene diamine) may be converted by conventional wet grinding, for example in a ball mill, into a pigment preparation which is finely divided. Adequate fine division which permits trouble free spinning is achieved after a grinding period of about 100 hours.

According to the new process, pigment preparations for dope-dyeings or mass-colouring polyacrylonitrile which have a carbon black content of up to 35% by weight may be prepared in relatively short grinding periods. This advantageous result of the process according to this invention could not have been expected because other similar amines, such as monoethanolamine, diethanolamine or 4,4-diaminodi-

phenylamine, do not exhibit this favourable effect.

The invention is illustrated by the following Examples.

Example 1

25 parts of carbon black having a mean particle size of 340 Å is stirred into 74 parts of dimethylformamide to which 1 part of triethanolamine has been added. This mixture is ground in a ball mill for about 100 hours to effect fine dispersion. A very finely particled pigment preparation is obtained which permits troublefree operation in the dope-dyeing of polyacrylonitrile. If the same amount of p-phenylene diamine be used instead of triethanolamine, a pigment preparation having similar properties is obtained.

A pigment preparation having the same viscosity and particle size can only be achieved when no addition of triethanolamine or p-phenylene diamine has been made by decreasing the amount of carbon black to 12 parts and prolonging the grinding period by twice to three times.

Example 2

35 parts of carbon black having a mean particle size of 500 Å is stirred into 64 parts of dimethylformamide to which 1 part of triethanolamine has been added. This mixture is ground in a ball mill. A pigment preparation suitable for dope-dyeing polyacrylonitrile is obtained after a grinding period of about 100 hours.

When triethanolamine is not added, a pigment preparation having the same viscosity and particle size is only obtained when the amount of carbon black is de-

creased to 20 parts and the grinding period is prolonged to twice to three times.

WHAT WE CLAIM IS:—

1. Pigment preparation for dope-dyeing or mass-dyeing polyacrylonitrile which consists of or contains: (a) carbon black, (b) dimethylformamide and (c) 0.01 to 10% by weight (on the preparation) of triethanolamine and/or p-phenylene diamine.

2. Pigment preparation as claimed in claim 1 in which component (c) is present in an amount of 0.1 to 2% by weight on the preparation.

3. A process for the production of pigment preparations as claimed in claim 1 wherein carbon black is ground with dimethylformamide in the presence of 0.01 to 10% by weight (on the preparation) of triethanolamine and/or p-phenylene diamine.

4. A process for the production of pigment preparations as claimed in claim 2 wherein carbon black is ground with dimethylformamide in the presence of 0.1 to 2% by weight (on the preparation) of triethanolamine and/or p-phenylene diamine.

5. A process for the production of pigment preparations containing carbon black substantially as described in the first paragraph of either Example 1 or Example 2.

6. Pigment preparations which have been obtained by the process claimed in any of claims 3 to 5.

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